

REMARKS

Applicant thanks the Examiner for the very thorough consideration given the present application.

Claims 1-10 are now present in this application. Claims 1, 4 and 8 are independent.

Amendments have been made to the Title, Abstract of the Disclosure and specification, claims 6-10 have been added, and claims 1, 3 and 4 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicant thanks the Examiner for acknowledging Applicant's claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document. 8

Drawings

Applicant has not received a Notice of Draftsperson's Patent Drawing Review PTO-948 indicating whether or not the formal drawings have been approved by the Draftsperson. Clarification in the next Office Action is respectfully requested. ✓

Objection to Title of the Invention

The Examiner objected to the title of the invention as not being descriptive, and states that a new title is required that is clearly indicative of the invention to which the claims are directed.

Applicant has amended the Title of the Invention in order to better reflect the subject matter claimed.

Abstract of the Disclosure

Applicant has amended the Abstract of the Disclosure in order to place it in better form.

Substitute Specification

In accordance with MPEP §608.01(q), Applicant herewith submits a substitute specification in the above-identified application. Also included is a marked-up copy of the original specification which shows the portions of the original specification which are being added and deleted. Applicant respectfully submits that the substitute specification includes no new matter and that the substitute specification includes the same changes as are indicated in the marked-up copy of the original specification showing additions and deletions.

Because the number of amendments which are being made to the original specification would render it difficult to consider the case, or to arrange the papers for printing or copying, Applicant has voluntarily submitted this substitute specification. Accordingly, Applicant respectfully requests that the substitute specification be entered into the application.

Rejection Under 35 U.S.C. §§ 102/103

Claims 1-5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Maeda et al. (Maeda). This rejection is respectfully traversed.

Maeda

Maeda is directed to an optical disk recording/reproducing device, which records and/or reproduces information on and/or from an optical disk wherein pre-recorded information is cyclically provided along a track so as to permit rotational control by constant linear velocity (see Maeda, Col.3, lines 31-37).

When a disk is originally designed for recording/reproducing using rotation control by constant linear velocity (CLV) only, it is necessary to vary the rotational velocity of a motor depending on positions on the disk in the radius direction, thereby making rotation control of the motor complicated and

access time longer (see Maeda, Col. 2, lines 7-14). Further, in CLV control, the required reproducing time per one rotation of the disk increases as the relevant position gets closer to the circumferential section, making the reproducing time longer for the entire region of the disk (see Maeda, Col.2, lines 15-23).

An alternative rotational control method, constant angular velocity (CAV) rotational control, keeps the rotational speed of a disk constant, but because the recording density lowers as the relevant position gets closer to the circumferential section, enough recording capacity is not obtained (Col.2, lines 23-35).

As a result of the shortcomings of these two methods, a combined method of rotational control, modified constant angular velocity (MCAV) rotational control has been proposed. There is yet another problem presented using MCAV control, however, in that the format whereby the pre-recorded information is recorded is different between those disks provided with CLV rotational control and those provided with CAV or MCAV control (Col.2, line 67-Col.3, line 5). Thus, the objective of Maeda is to provide an optical disk recording/reproducing device which permits an optical disk fabricated for use in CLV method, to be used interchangeably both in CLV method and in MCAV method (Col.3, lines 25-30).

To accomplish the stated objective, the device of Maeda relies on a reference signal generation means for generating a reference signal according to a recording frequency of the pre-recorded information in the signals reproduced by a reproducing means, and recording means for performing a recording operation by using a frequency for recording in accordance with the reference signal generated by the reference signal generation means (Col.3, lines 34-47). The device or method of Maeda does not compare a current recording speed to a predetermined recording speed, or change a recording mode based on the result of the speed comparison. Both device and method rely solely on a reference signal generation means for generating a reference signal according to a recording frequency of the pre-recorded information.

Therefore Maeda does not disclose (d) comparing the determined recording speed with a predetermined speed; and (e) changing the recording mode between CAV and CLV according to the result of the comparing step, as recited in independent claim 1, as amended.

With regard to claim 4, Maeda does not disclose a step of measuring the frequency of a wobble signal, or a step of comparing and changing a recording mode based on the result of said comparing. Maeda simply relies on a reference signal generation means for generating a reference signal according to a recording frequency of the pre-recorded information (Col.3, line 57-Col.4, line 9). Further, the device and method of Maeda is directed to disks that are

formatted for rotational control using CLV in the first instance, and does not have the capability of changing from CAV control to CLV control. Further, Maeda does not disclose when to change the recording mode. Therefore Maeda does not disclose (c) comparing the measured frequency with a predetermined frequency; and (d) determining when to change the recording mode to CLV based on the comparing step, as recited in independent claim 4, as amended.

Maeda in View of Tomita

Maeda (as argued above) fails to disclose or suggest the features recited in independent claims 1 and 4 (as amended). Tomita, which fails to disclose or suggest a method or device for changing from CAV to CLV mode, cannot fill this vacancy.

Claims 2, 3 and 5 depend on claims 1 and 4, either directly or indirectly. Since neither Maeda, nor Tomita discloses or suggests the features of independent claims 1 and 4, Maeda, in view of Tomita cannot render claims 1-5 obvious to one of ordinary skill in the art. Reconsideration and withdrawal of these art grounds of rejection are respectfully requested.

Claims 6-10

Claims 6-10 have been added for the Examiner's consideration. Applicant submits that claims 6 and 7 depend, either directly or indirectly, from independent claims 1 and 4, and are therefore allowable based on their dependence from claims 1 and 4, which are believed to be allowable.

Independent claim 8 recites a combination of elements in a method of changing a rotating mode for recording between CAV (Constant Angular Velocity) and CLV (Constant Linear Velocity), including (a) measuring a recording speed of input data on a recording medium; (b) comparing the recording speed with a threshold speed, wherein the threshold speed is determined by stable encoding speed of an encoder, properties of the recording medium or the like; and (c) changing the rotating mode for recording between CAV and CLV according to the result of the comparing step. Applicant respectfully submits that this combination of elements as set forth in independent claim 8 is not disclosed or made obvious by the prior art of record.

Claims 9 and 10 depend from independent claim 8, and are therefore allowable based on their dependence from claim 8, which is believed to be allowable.

Consideration and allowance of claims 6-10 are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Registration No. 51,084, at (703) 205-8034, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Application No.: 09/863,273
Art Unit 2653

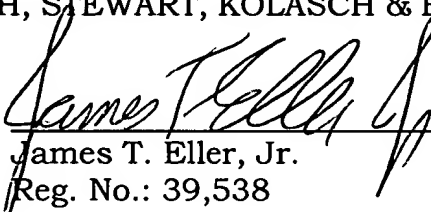
Attorney Docket No. 2950-0194P
Amendment filed June 27, 2002
Page 14


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By:


James T. Eller, Jr.
Reg. No.: 39,538


JTE/PLS:asc

P.O. Box 747
Falls Church, Virginia 22040-0747
Telephone: (703) 205-8000

Attachment: Version with Markings to Show Changes Made
Abstract of the Disclosure
Substitute Specification (with marked-up copy)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Abstract of the Disclosure:

The Abstract of the Disclosure has been amended as follows:

--ABSTRACT OF THE DISCLOSURE

The present invention relates to a method of changing a recording mode from CAV (Constant Angular Velocity) mode to CLV (Constant Linear Velocity) mode in the middle of recording data to a disk recording medium. A method according to the present invention reads ATIP-framed data encoded in a wobble signal formed along a spiral physical track while recording input data to a recording medium, and detects a sync signal contained in the read ATIP-framed data. Another method measures the frequency of a low-frequency component of the wobble signal instead of reading ATIP-framed data. These two methods [determines] determine, in common, when to change the recording mode from CAV to CLV based on the period of the detected sync signal or the measured frequency. The present invention makes it possible to record input data to an entire area of a disk more rapidly without fatal errors such as imperfect writing. As a result, total recording time can be reduced with stable recording guaranteed.--

In the Specification:

A marked-up version of the Substitute Specification is attached hereto, showing the changes made.

In the Claims:

The claims have been amended as follows:

1. (Amended) A method of changing a recording mode [from] between CAV (Constant Angular Velocity) [to] and CLV (Constant Linear Velocity), comprising the steps of:

- (a) reading data encoded in a wobble signal of a physical track reproduced while recording input data to a recording medium;
- (b) detecting a predetermined signal among the read data; [and]
- (c) determining a current recording speed based on the predetermined signal [when to change the recording mode based on the detected signal.];
- (d) comparing the determined recording speed with a predetermined speed; and
- (e) changing the recording mode between CAV and CLV according to the result of the comparing step.

3. (Amended) The method set forth in claim 1, wherein said step (b) detects a period of the predetermined signal.

4. (Amended) A method of changing a recording mode [from] between CAV (Constant Angular Velocity) [to] and CLV (Constant Linear Velocity), comprising the steps of:

- (a) recording input data to an installed recording medium in CAV mode; [and]
- (b) measuring the frequency of a low-frequency component of a wobble signal, which is generated during said recording, formed along a spiral physical track; [and]

(c) comparing the measured frequency with a predetermined frequency;
and

(d) determining when to change the recording mode to CLV based on the
[measured frequency] comparing step.

Claims 6-10 have been added.